

## Bluetooth 4.0+EDR Module



Module Number: WLINK20705FMD\_B29

Version: V1.0

Jan 2013

### Features:

- Bluetooth 4.0 + EDR compliant
- Programmable output power control meets Class1, Class 2, or Class 3 requirements
- Use supply voltages up to 5.5V
- Supports Broadcom SmartAudio™, wide-band speech, SBC codec, and packet loss concealment.
- Ultra-low power consumption
- ARM7TDMI-S™-based microprocessor with integrated ROM and RAM.
- Supports mobile and PC applications without external memory

### Product Description:

The WLINK20705FMD\_B29 Module is a Bluetooth module based on the Broadcom BCM20705.

It is fully compliant with the Bluetooth Radio Specification 4.0+EDR.

The Module has been designed to provide low power, low cost, and robust communication for application in the globally available 2.4GHz unlicensed ISM band.

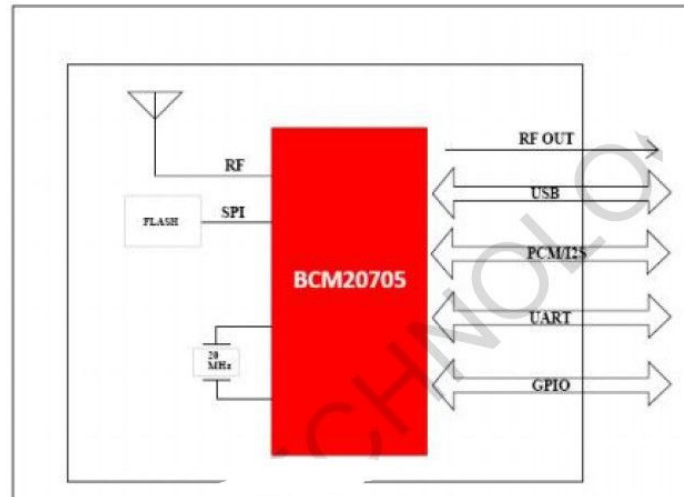
The module includes Flash, crystal, and PCB antenna. can use an external antenna through stamps hole.

### Applications:

- Desktop and laptop personal computers
- Personal digital assistants
- Smart TV

### Block Diagram:

The primary component on the WLINK20705FMD\_B29 module is the Broadcom BCM20705 chip, which is a Bluetooth 4.0 compliant single-chip device with EDR support. The baseband and radio have been integrated into a single chip implemented in standard digital CMOS. The block diagram of the module is shown in Figure 1.



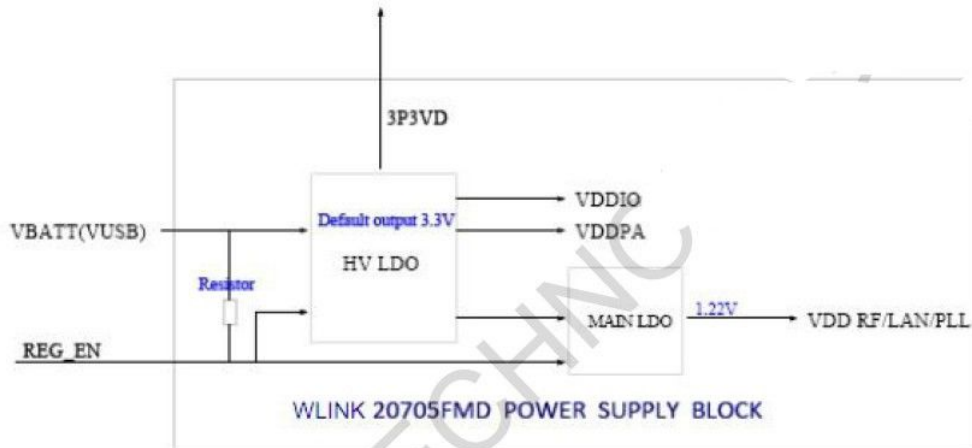
The BCM20705 complies with Bluetooth Core Specification, version 4.0 and is designed for use in standard Host Controller Interface (HCI) UART and HCI USB applications. The combination of the Bluetooth Baseband Core (BBC), a Peripheral Transport Unit (PTU), and an APM®-based microprocessor with on-chip ROM provides a complete lower layer Bluetooth protocol stack, including the Link Controller (LC), Link Manager (LM), and HCI.

The Bluetooth Baseband Core (BBC) implements the time critical functions required for high-performance Bluetooth and Low Energy operation. The BBC manages buffering, segmentation, and data routing for all connections. It also buffers data that passes through it, handles data flow control, schedules SCO/ACL Tx/Rx transactions, monitors Bluetooth slot usage, optimally segments and packages data into baseband packets, manages connection status indicators, and composes and decodes HCI packets. In addition to these functions, it independently handles HCI event types and HCI command types.

The BCM20705 microprocessor unit runs software from the Link Control (LC) layer up to

the Host Controller Interface (HCI). The microprocessor is based on the ARM7TDMIS 32-bit RISC processor with embedded ICE-RT debug and JTAG interface units. The microprocessor also includes 448 KB of ROM memory for program storage and boot ROM, 132 KB of RAM for data scratch-pad, and patch RAM code.

The BCM20705 has the PCM, USB, UART, and SPI peripheral interfaces.



### Pin-Out And Signal Descriptions:

The WLINK20705FMD\_B29 is a 18.5\*28.5\*2mm FR4 PCB with 29 pads located around the perimeter. Table 1 shows the pin-out diagram of the module and table 2 is the pin functions descriptions.

PIN	Signal	PIN	Signal	PIN	Signal	PIN	Signal	PIN	Signal
1	GND	2	GND	3	3P3VD	4	GPIO_6	5	UART_RTS_N
6	GPIO_5	7	PCM_CLK	8	PCM_OUT	9	PCM_IN	10	UP_TXD
11	UART_CTS_N	12	UP_RXD	13	GPIO_3	14	GND	15	GND
16	GND	17	GPIO_7	18	DP	19	DN	20	GPIO_0
21	RST_N	22	PCM_SYNC	23	GPIO_1	24	GND	25	VUSB
26	VREG_EN	27	GND	28	RFOUT	29	GND		

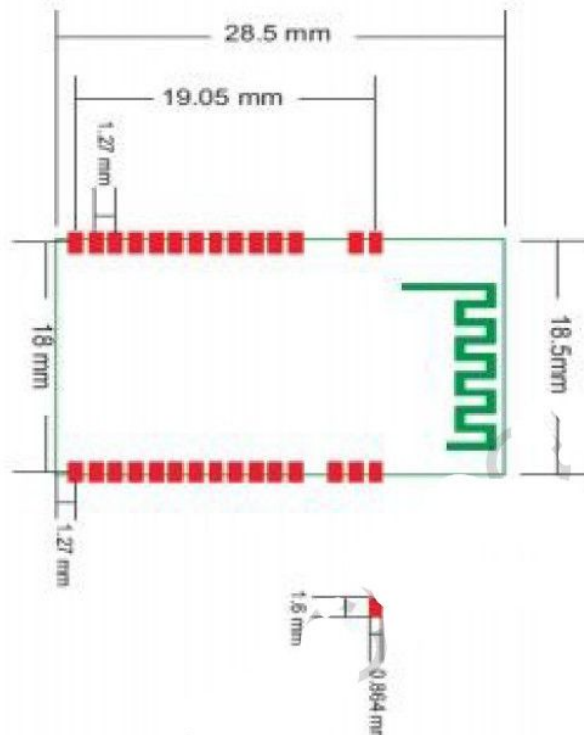
Table 1: Pin-Out Description

Pin Number	Pin Name	Default Direction	POR State	Function Description
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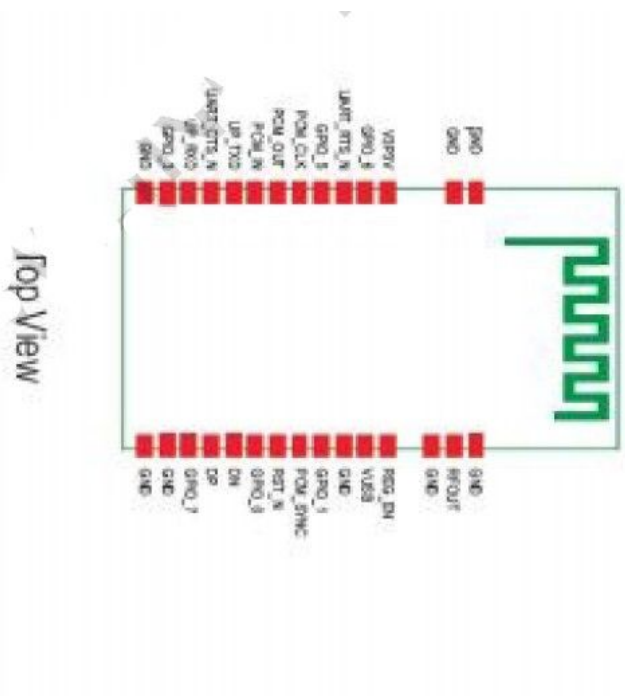
Table 1: Pin-Out Description

Pin Number	Pin Name	Default Direction	POR State	Function Description
1,2,13 14,15,16, 24,27,29	GND			Ground
25	VUSB			USB Vbus in
28	RF_OUT			RF I/O antenna port (Not in use by default)
10	UP_TXD			UART serial output-serial data output for the HCI UART interface
12	UP_RXD			UART serial input-serial data output for the HCI UART interface
5	UART_RTS_N			UART request to send output
11	UART_CTS_N			UART clear to send input
22	PCM_SYNC			Frame synchronization for PCM interface,I2S word select
8	PCM_OUT			Data output for PCM interface, I2S data output
9	PCM_IN			Data input for PCM interface,I2S data input
7	PCM_CLK			Clock for PCM interface,I2S clock
20	GPIO_0			GPIO/BT_WAKE
23	GPIO_1			GPIO/HOST_WAKE
13	GPIO_3			GPIO/LINK_IND
6	GPIO_5			GPIO/3D glasses SYNC
4	GPIO_6			GPIO
17	GPIO_7			GPIO
19	DN			USB D-
18	DP			USB D+
21	RST_N			Active-low reset input

**Module Mechanical Specification:**



PCB Thickness 0.8mm±10%



Finger 3: WLINK20705FMD Module PCB Size